

CREATE A WEB AR TREASURE HUNT GAME

JUNE 15





About the Assembly

- A smart lab based out of In5 since Dec 2014
- Over 200 free workshops done
- ASSEMBLY: HACK - Embedded systems, IoT and hardware
- ASSEMBLY: CODE - Software projects - APIs, frameworks, apps
- Age range: 16-60 - students, professionals, entrepreneurs
- Focus on smart technology and practical applications
- Forum: members.theassembly.ae



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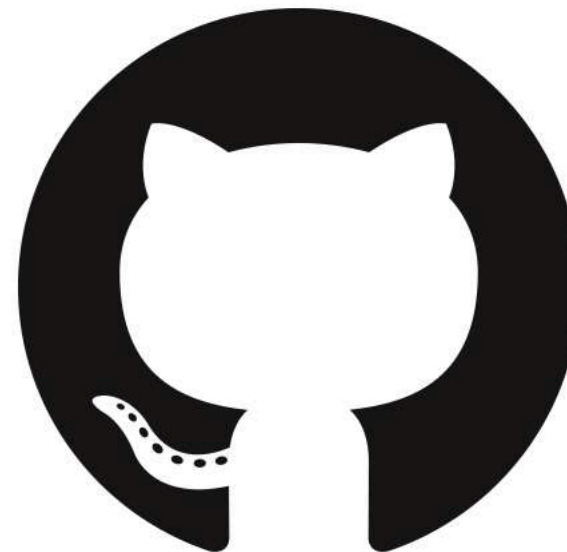


Overview

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TOPICS:

- VR.js
- A-Frame
- AR.js
- Markers
- Default Object
- Image as a Object
- Treasure Hunt



https://github.com/The-Assembly/Ar.js_TreasureHunt



Recap

- Introduction to WebVR with A-Frame
- Home automation using Augmented Reality.

<https://github.com/The-Assembly/WebVRIntro.git>

<https://github.com/The-Assembly/AR-HomeAutomation.git>



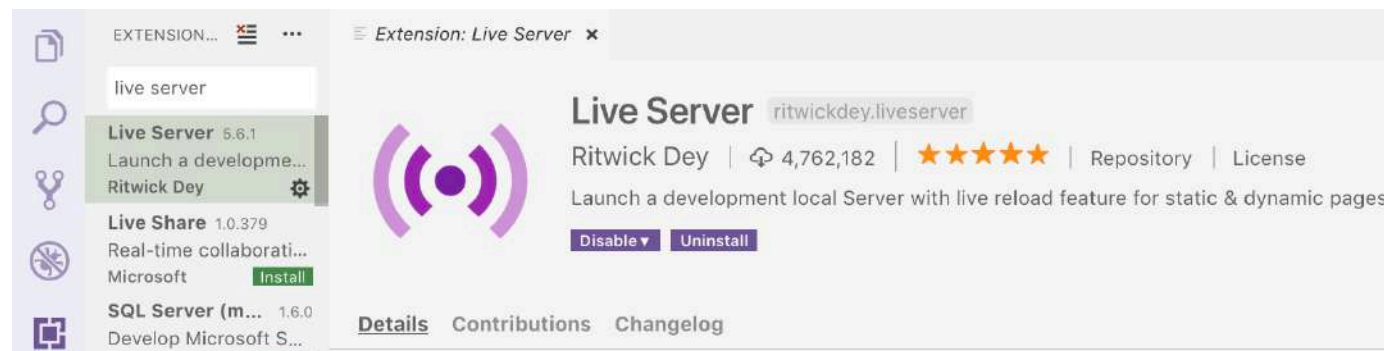
Software

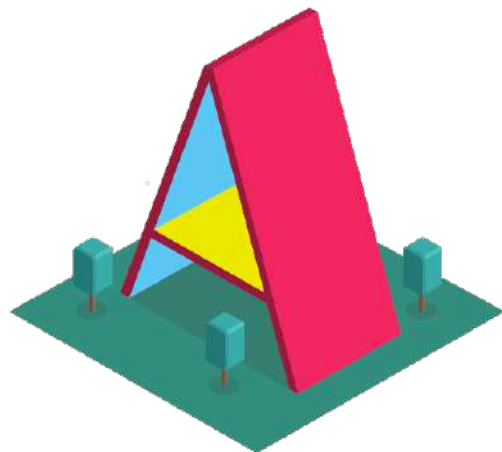
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- ✓ **Code Editor – Microsoft Visual Studio Code**
- ✓ **Extension in VS Code (Live Server – Ritwick Dey)**



<https://code.visualstudio.com/>





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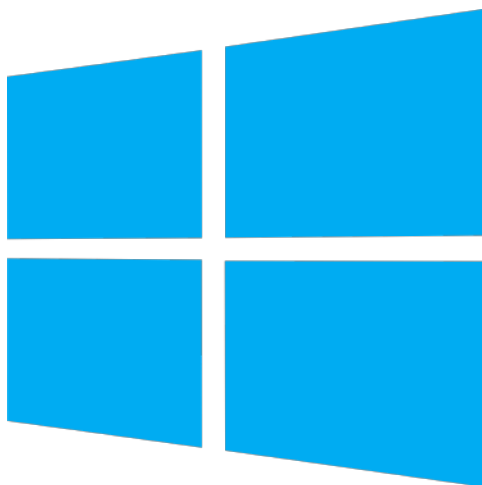


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<https://nodejs.org/en/>



1. `/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`
2. `brew install node`



What is Vr.js?

WebVR is an open specification that makes it possible to experience VR in your browser. The goal is to make it easier for everyone to get into VR experiences, no matter what device you have.

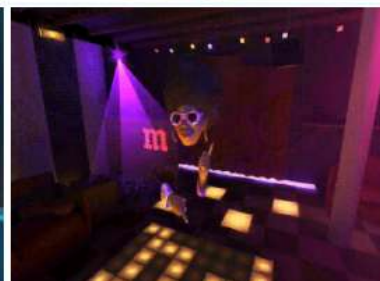




What is A-Frame?

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A-Frame is an open source web framework for building virtual reality (VR) experiences. It is an entity component system framework for Three.js where developers can create 3D and WebVR scenes using HTML.

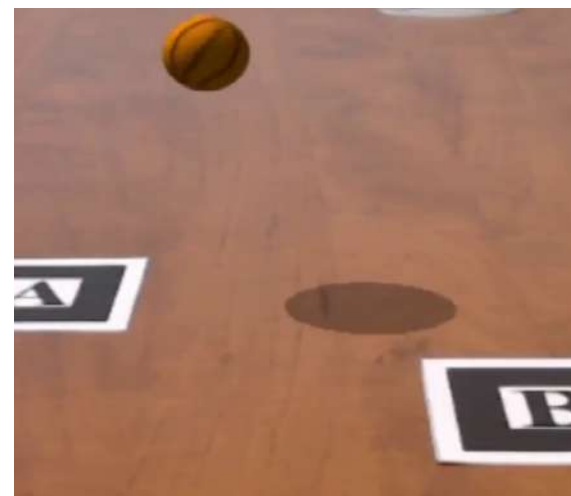




What is Ar.js?

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Ar.js is a JavaScript framework acting as a port of AR Toolkit, while leveraging other packages like a-frame and three.js.





Markers

An important feature of AR.js is the possibility to use custom markers, the default type is 'pattern'.



<https://jeromeetienne.github.io/AR.js/three.js/examples/marker-training/examples/generator.html>





Default Object

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```
HTML
1 <!-- AR.js by @jerome_etienne - github:
   https://github.com/jeromeetienne/ar.js - info:
   https://medium.com/arjs/augmented-reality-in-10-lines-of-html-
   4e193ea9fdbf -->
2 <script src="https://aframe.io/releases/0.8.0/aframe.min.js">
   </script>
3 <script
   src="https://cdn.rawgit.com/jeromeetienne/AR.js/1.6.0/aframe/build/
   aframe-ar.js"></script>
4 <body style='margin : 0px; overflow: hidden;'>
5   <a-scene embedded arjs='sourceType: webcam;'>
6     <a-box position='0 0.5 0' material='opacity: 0.5;'></a-box>
7     <a-marker-camera preset='hiro'></a-marker-camera>
8   </a-scene>
9 </body>
10
```





Image as a Object

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```
HTML
1 <script src="https://aframe.io/releases/0.9.1/aframe.min.js"></script>
2 <script src="https://rawgit.com/jeromeetienne/ar.js/master/aframe/build/aframe-
  ar.js"></script>
3 <body style='margin : 0px; overflow: hidden;'>
4 <a-scene embedded artoolkit='sourceType: webcam; cameraParametersUrl:
  https://rawgit.com/jeromeetienne/ar.js/master/data/data/camera_para.dat' >
5   <a-marker type='pattern'
  url='https://rawgit.com/jeromeetienne/ar.js/master/data/data/patt.hiro'>
6
7   <a-sphere src="https://raw.githubusercontent.com/aframevr/sample-
  assets/master/assets/images/space/earth_atmos_4096.jpg" radius="0.5" segments-
  height="53" position="0 0 0.5" rotation='0 0 0'>
8     <a-animation attribute="rotation"
9       dur="15000"
10      to="0 360 0"
11      easing= "linear"
12      repeat="indefinite">
13   </a-animation>
14 </a-sphere>
15 <!-- <a-sky color="lightyellow"></a-sky> -->
16 </a-marker>
17 <!-- define a simple camera -->
18 <a-entity camera></a-entity>
19 </a-scene>
20 </body>
```





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Treasure Hunt!



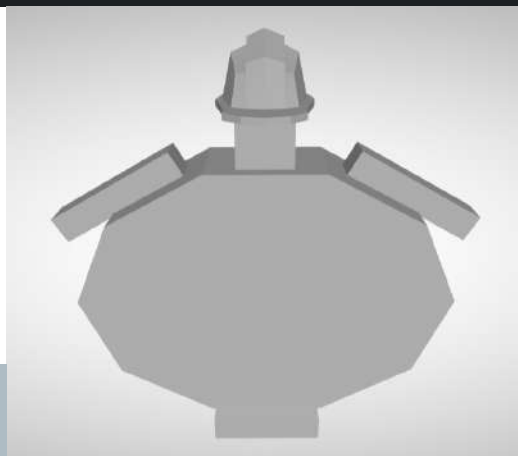
Importing libraries

```
1 <html>
2   <head>
3     <link rel="stylesheet" href="style.css">
4   </head>
5   <script src="https://aframe.io/releases/0.9.2/aframe.min.js"></script>
6   <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
7   <script src="js/models.js"></script>
8   <script src="js/userState.js"></script>
9   <script src="js/interaction.js"></script>
10  <body style='margin : 0px; overflow: hidden;'>
11    <div class='speech-bubble' style="z-index:100000; font-size:50px"></div>
12    <a-scene embedded arjs cursor="rayOrigin: mouse" accepts-clicks>
13
```




Importing the character and tool

```
15 <a-assets>
16 <!-- id="file name" src="file url" -->
17   <a-asset-item id="hammer" src="https://raw.githubusercontent.com/mridulrb/ar-
    builders/public/Hammer.gltf"></a-asset-item>
18   <a-asset-item id="biggie" src="https://raw.githubusercontent.com/mridulrb/ar-
    builders/public/builder-markers/biggie.gltf"></a-asset-item>
19 </a-assets>
```



biggie.gltf



Hammer.gltf



Adding markers

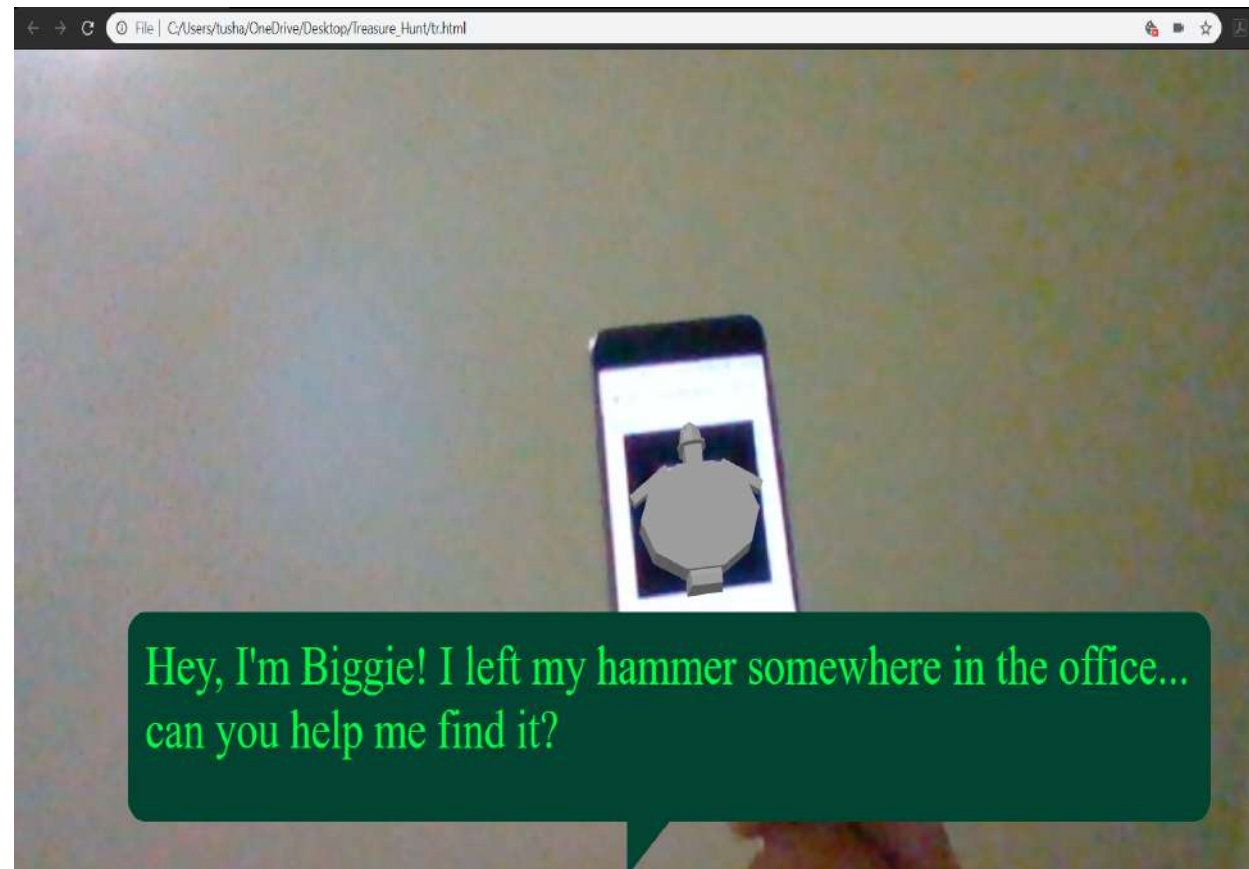
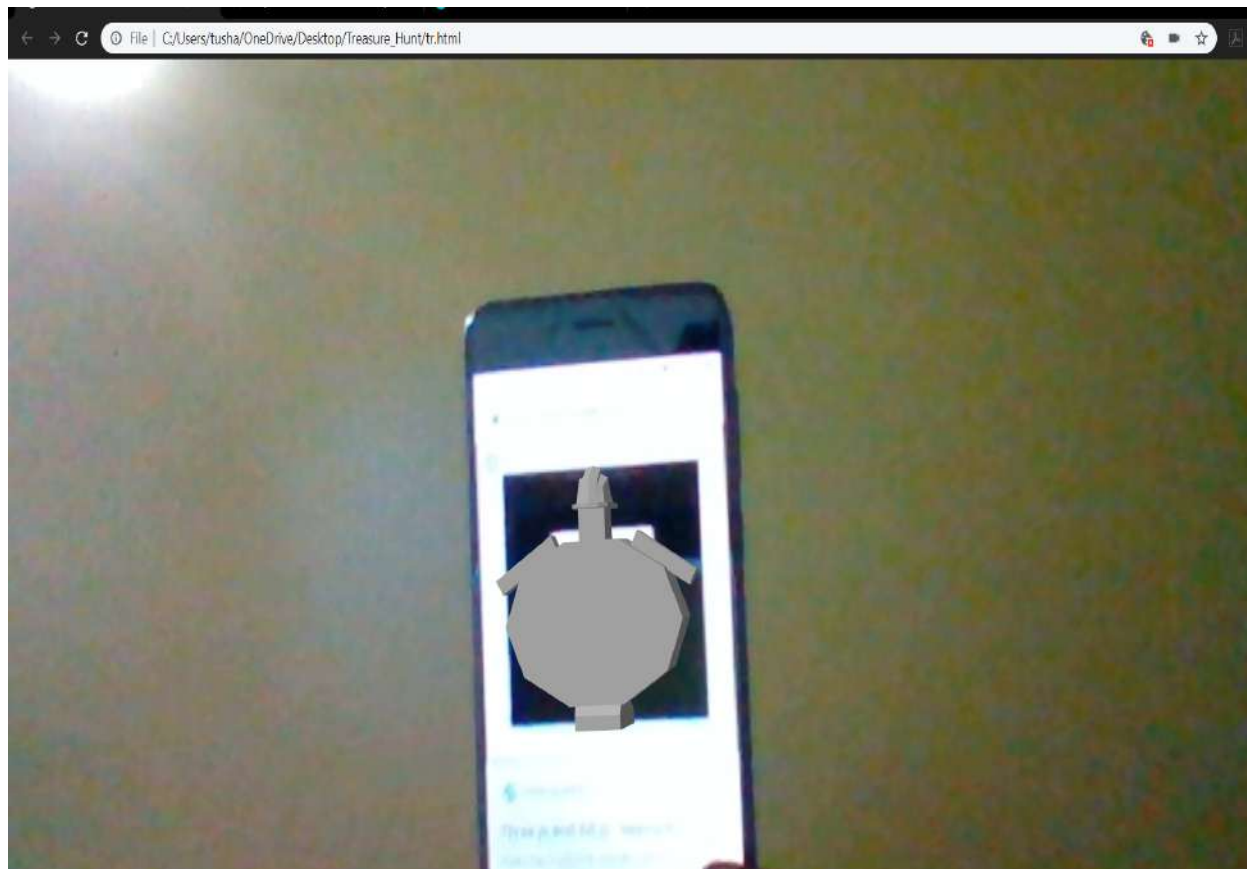
```
21 <a-marker preset='hiro' id="hammer-marker">
22   <!a-marker-camera preset='hiro'></a-marker-camera>
23   <a-entity rotation="90 -45 0" position="0 0 0" material="color: #F00;" scale="1 1 1" gltf-
    model="#hammer"></a-entity>
24   </a-marker>
25
26 <a-marker preset='kanji' id="biggie-marker">
27   <!a-marker-camera preset='kanji'></a-marker-camera>
28   <a-entity rotation="0 180 0" position="0 0 0.5" scale="0.15 0.15 0.15" material="color: #F00;"
    gltf-model="#biggie"></a-entity>
29   </a-marker>
```

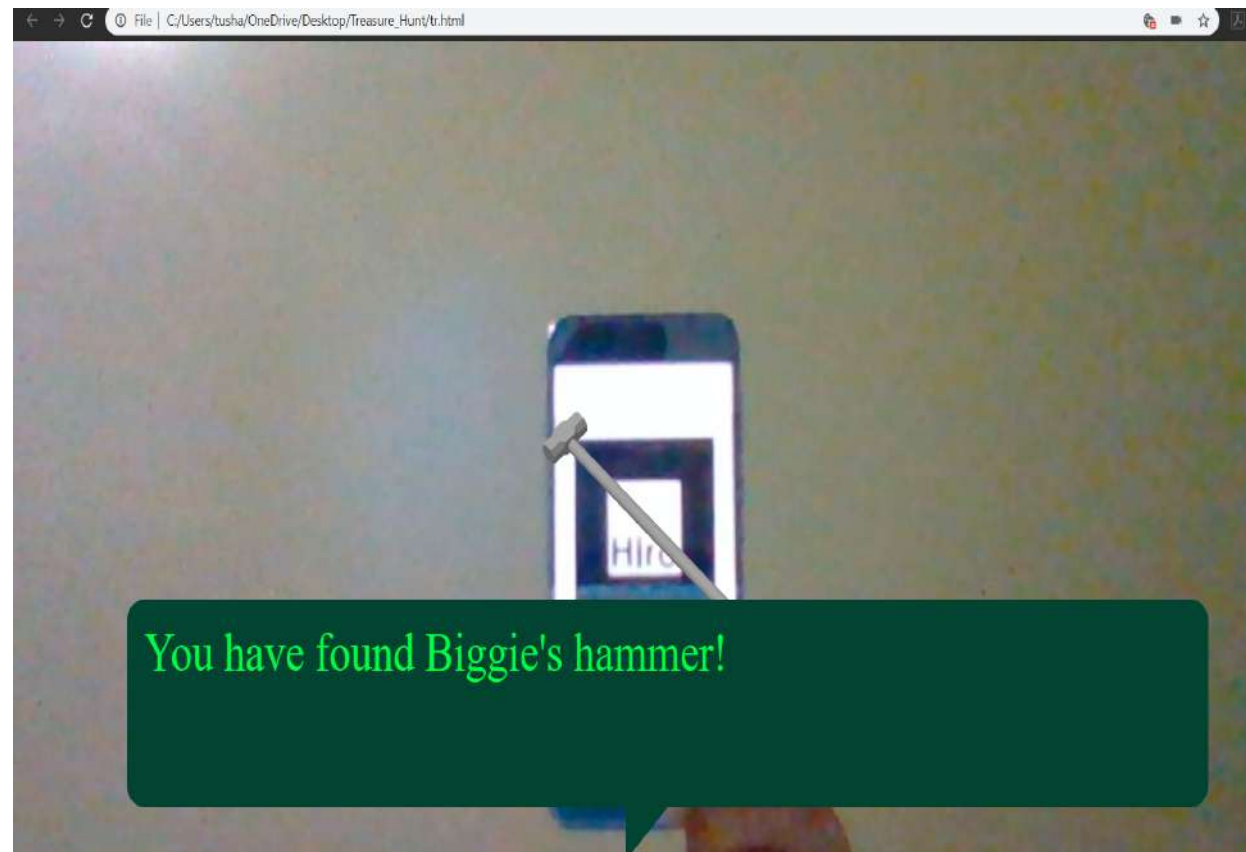
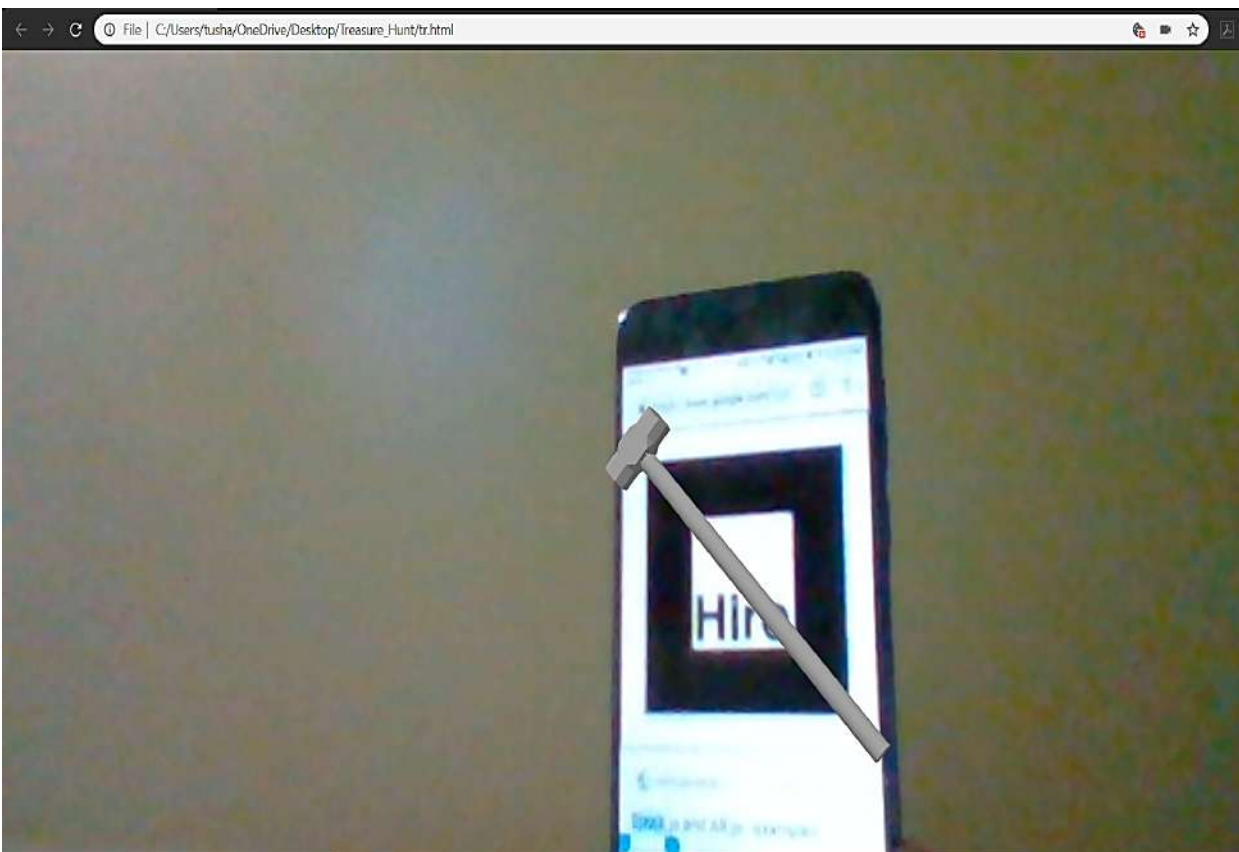


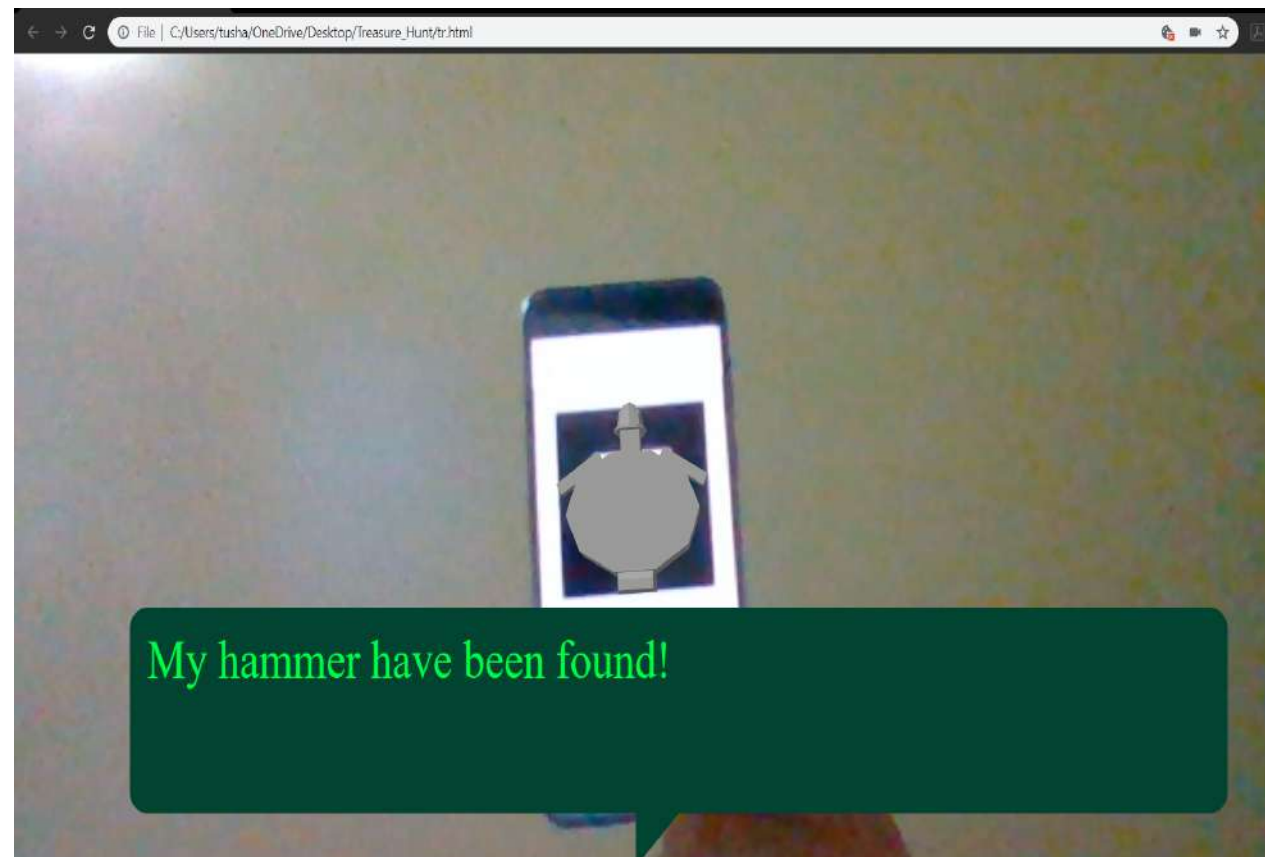
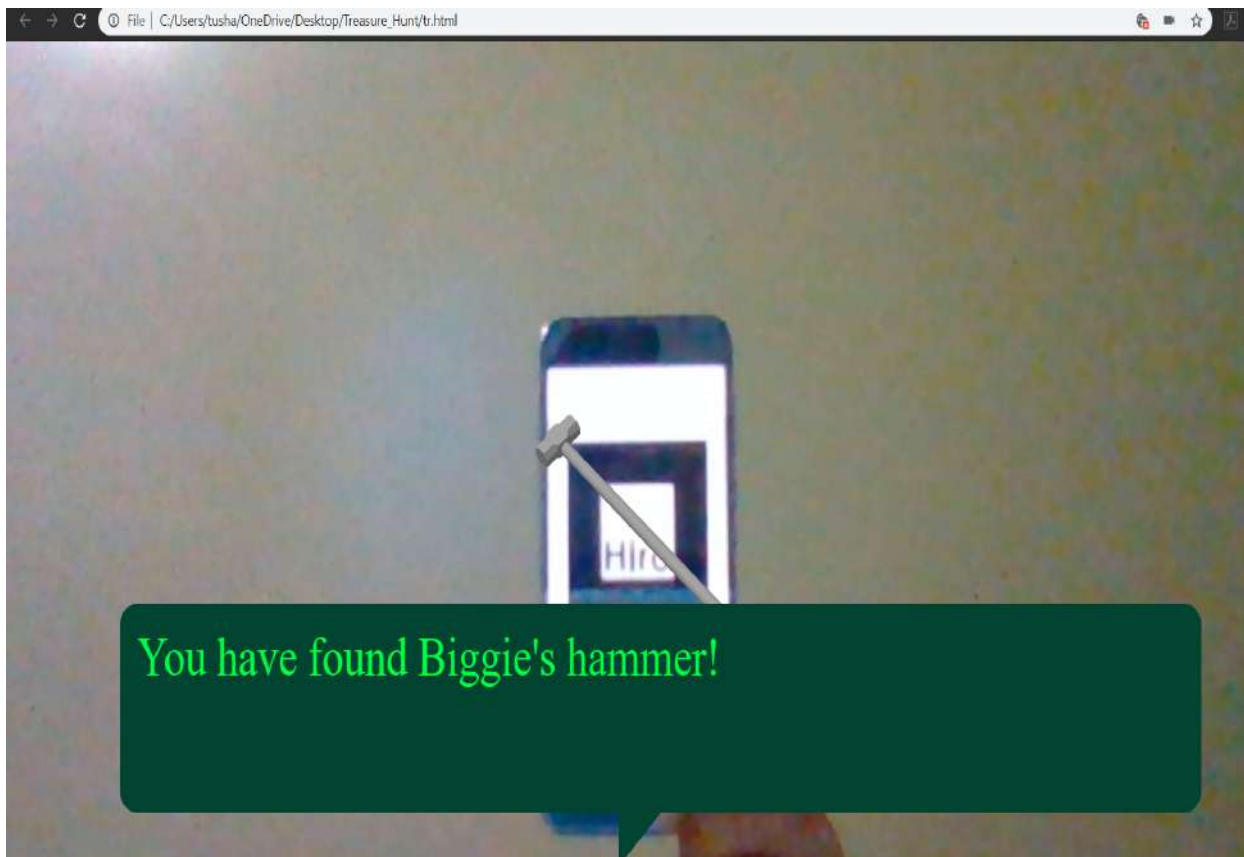
Marker for hammer



Marker for Biggie









THANK YOU!